EXPLANATION OF PLATE IX.—*Phallogaster saccatus* Morgan. Fig. 1. Stipitate habit. Fig. 2, 3. Appearance just before dehiscence showing cracks at apex and thin areas *z*. Fig. 4. The same specimen as fig. 3, after dehiscence. *a*, perforate thin areas. *b*, deliquesced gleba masses adhering to inner face of peridial wall. Fig. 5. Smaller example which has become perforate without complete dehiscence. Fig 6. Longitudinal section of a mature specimen before dehiscence. x, x', x'', x''', gelatinous axis and its derivatives, *y* points of origin of gleba from peridial wall. *z*, thin areas in peridial wall. Fig. 7. Basidia with spores *in situ*. Fig. 8. spores.

Figs. 1-6 about natural size. Fig. 7 drawn with Leitz 1-12 oil immersion. Zeiss ocular 4. Fig. 8 Leitz 1-12 oil im. Zeiss comp. oc. 12.

The genus Cæsalpinia.

E. M. FISHER.

Following the publication of my revision of the genus *Hoffmanseggia* in Contributions National Herbarium, I. no. 5, I desire to make certain corrections and supplementary statements.

On page 144, §1, line 1 of synopsis, the reference shouid be to no. 2 (*H. drepanocarpa* Gray) not no. 4 (*H. gracilis* Watson).

Since *nomina nuda* are not to be recognized, *H. glabra*, var. *intricata* Fisher should read *H. intricata* Brandg.; and *H. glabra* Fisher should read *H. intricata*, var. *glabra* Fisher.

It may be well to speak of the combination *H. falcaria*, var. *demissa* Fisher. Dr. Gray, in 1852, published in Pl. Wright., in the following order, *H. densiflora* Benth. MSS., *H. stricta*, var. *demissa* Gray, and *H. stricta* Benth. MSS. *H. densiflora* Benth. is described incompletely, the fruit being wanting, and Dr. Gray remarks that he is not sure that it is distinct from the next form, *H. stricta*, var. *demissa* Gray. From an examination of the types, I concluded that *H. densiflora* is intermediate between *H. stricta* Benth. and *H. stricta*, var. *demissa* Gray. Dr. Gray's remark is sufficient to show that he doubted whether they should be separate, and his unwillingness to publish the var. *demissa* as a species (although having mature fruit) shows which he considered to be the type. Unfortunately in this case, however, the rules of nomenclature demand that *H. falcaria*, var. *demissa* (Gray) Fisher be changed to *H. falcaria*, var. *densiflora* (Benth.) Fisher.

At the time of writing the revision, it was with hesitation that it was not merged with *Cæsalpinia*. After a careful examination of the flowering parts and their tissues, in several species

of both genera, I have come to the conclusion that they must be united, even if extreme species in the two genera seem to be so unlike each other. *Hoffmanseggia caudata* Gray has more the characters of *Cæsalpinia Palmeri* Watson than any species of its own genus. Its broad oval sepals, short-clawed elliptical petals, glandless filaments, and broadly ascinaciform pod, are characters which bring it very near *C. Palmeri*; while the stipitate and black sessile glands, ovate bracts, deciduous sepals, and somewhat declined stamens, place it in an intermediate position between *Hoffmanseggia* proper, and *Pomaria*.

Bentham and Hooker have placed *Pomaria* in *Cæsalpinia* (which seems to differ from Torrey and Gray's idea), and then, speaking of *Hoffmanseggia*, say: "The genus scarcely differs from *Cæsalpinia* § *Pomaria* in habit, the sepals less imbricated and the legume thinner."

At first sight *H. falcaria* Cav. seems distinctly separate from any species of *Cæsalpinia*, but following my classification through this section to *H. intricata* Brandg., we pass to *H. caudata* Gray, and very naturally approach the section *Pomaria*. The black glandular section is very near *Pomaria* (according to Benth. and Hook.) the legumes taking on characters of *Cuilandina*, *Sappania*, etc.

Considering all these relations, and the impossibility of establishing any sure generic distinctions, since there are intermediate forms which bridge all proposed distinctions, I am compelled to follow Baillon and place our species of *Hoffmanseggia* under *Cæsalpinia*. The necessary changes in our North American species are as follows:

1. C. FALCARIA: *H. falcaria* Cav.
   - Var. STRICTA: *H. falcaria*, var. *stricta* (Benth.) Fisher.
   - Var. DENSIFLORA: *H. falcaria*, var. *demissa* (Gray) Fisher.
   - Var. RUSBYI: *H. falcaria*, var. *Rusbyi* Fisher.
   - Var. PRINGLEI: *H. falcaria*, var. *Pringlei* Fisher.
   - Var. CAPITATA: *H. falcaria*, var. *capitata* Fisher.
2. C. DREPANOCARPA: *H. drepanocarpa* Gray.
3. C. OXYCARPA: *H. oxycarpa* Benth.
4. C. WATSONI: *H. gracilis* Watson (1882), not Hook. & Arn. (1841).
5. C. GLADIATA: *H. gladiata* Benth.
6. C. PLATYCARPA: *H. platycarpa* Benth.

7. C. DRUMMONDII: *H. Drummondii* Torr. & Gray.
8. C. TEXANA: *H. Texana* Fisher.
9. C. VIRGATA: *H. microphylla* Torr. (Specific name preoccupied under *Cæsalpinia.*)
10. C. INTRICATA: *H. glabra* Fisher, var. *intricata* (Brandg.) Fisher.
    Var. GLABRA: *H. microphylla* Torr., var. *glabra* (nomen nudum) Watson. *H. glabra* Fisher.
11. C. CAUDATA: *H. caudata* Gray.
12. C. BRACHYCARPA: *H. brachycarpa* Gray.
13. C. MULTIJUGA: *H. multijuga* Watson.
14. C. MELANOSTICTA: *H. melanosticta* (Schauer) Gray.
    Var. PARRYI: *H. melanosticta*, var. *Parryi* Fisher.
    Var. GREGGII: *H. melanosticta*, var. *Greggii* Fisher.
15. C. CANESCENS: *H. canescens* Fisher.
16. C. JAMESII: *H. Jamesii* Torr. & Gray.
17. C. FRUTICOSA: *H. fruticosa* Watson.

There also may be added the following South American form, from U. S. of Colombia, that has come under my observation, and which may possibly extend to the isthmus:

18. C. VISCOSA: *H. viscosa* Hook. & Arn.

Indiana University, Bloomington, Ind.

The tendrils of Passiflora caerulea.

D. T. MAC DOUGAL.

WITH PLATE X.

II. External phenomena of irritability and coiling.

In the preceding paper[1] attention was called to the more apparent features of the development, minute structure and arrangement of the tissues, with a view to determining their value as factors in the coiling movements consequent upon irritation of the lower surface during the period of normal activity of the organ. The results recorded in this and the preceding paper were obtained by the study of plants in the green-house of the Purdue Experiment Station,[2] during the

[1] BOTANICAL GAZETTE, XVII, 205.

[2] I am indebted to Dr. J. C. Arthur for his kindness in placing at my disposal the facilities of the green-house, laboratory and apparatus, and in giving me the use of his private library, together with much valuable advice. I am also under obligations to Miss Katherine E. Golden, Assistant Botanist, for material aid.